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Estimating Import and Export Demand Function : The Case of Bangladesh*

by
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I. INTRODUCTION

There is considerable variability across countries in the sensitivity of external trade to changes in income and price variables. It comes as much from the characteristics of exchange rate system as from macroeconomic characteristics of countries. Exchange rate changes are influenced by factors like inflation, real income, interest rates and trade imbalances. The relationship between exchange rate and these factors is discussed by Mussa (1979). As exchange rate changes, it is expected that the relative prices of imports and exports are changed too, thereby inducing shifts in production and consumption mixes. These changes, in turn, are expected to restore or to maintain equilibrium in the balance of payments.

A relevant procedure for analysis is then to isolate the marginal impact of each of these variables on trade, holding constant at the same time the impact of other forces. This paper is an attempt in that direction. Its primary purpose is to analyze the effects of exchange rate changes of Bangladesh on its aggregate imports and exports. In this regard, import and export demand functions are estimated. The parameter estimates would then provide insights into the effects of exchange rate changes on foreign trade. Besides using conventional determinants of trade, the paper tests some additional hypotheses.

The paper is organised as follows. First, both the import-demand and the export-demand models are presented. Second, the methodology of the research is explained, and the sources of the data are mentioned. Third, the results of the study are discussed. And finally, some conclusions and eventual policy implications are mentioned. The paper concentrates more on the empirical side. For a discussion on the theory of effects of exchange rate changes on trade, one can consult any international economic textbook, for example, Kindleberger (1973, ch. 19).

II. SPECIFICATION OF IMPORT-DEMAND MODEL

Economic theory tells us that domestic real income and relative prices are the two major economic variables in the demand for a country's imports. Assuming a multiplicative model holds, which is then linearised in parameters through a natural logarithmic transformation like the following:

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$$\ln QM = a_0 + a_1 \ln Y + a_2 \ln P \quad (1)$$

where

- OM = Quantity of Imports Demanded
 Y = Real Income of the Country
 P = Relative Price Index i.e. price of imports divided by price of domestically produced substitutes.

The specification of the model in terms of logarithm is generally made on grounds of convenience and ease of interpretation. Such a specification implies that a_1 and a_2 are real income and relative price elasticities of imports, respectively. It is expected that a_1 is positive while a_2 negative. Few comments are worth mentioning regarding the above model. First, the sign of income elasticity (a_1) need not necessarily be positive. The reason for the ambiguity is because imports represent the difference between consumption of importables and the production of importables (provided there are no exports of these goods). Now, as real income rises, consumption of importables could rise faster or slower than the production, so that imports could rise or fall. (Magee, 1975; Khan and Ross, 1975). Secondly, the homogeneity assumption embodied in the relative price variable has been put into question. (Murray and Ginman, 1976). Equation (1) constrains the elasticity with respect to import prices to be equal in magnitude but opposite in sign to the elasticity with respect to domestic prices. Therefore, the use of relative price specification in import demand model could be inappropriate.

But such a constraint can easily be removed through a simple modification of equation (1), i.e. estimating a new equation where the prices of imports and domestically produced substitutes are specified separately. So we rewrite equation (1) as follows:

$$\ln QM = a_0 + a_1 \ln Y + a_2 \ln PD + a_3 \ln PM \quad (2)$$

where

- PD = Price Index of Domestically Produced Substitutes
 PM = Price Index of Imports.

a_1 , a_2 and a_3 are the income, domestic price, and import price elasticity of demand for imports, respectively. The expected sign of a_1 and a_3 are positive and negative, respectively. If the traditional import demand model (equation (1)) is correctly specified, then in equation (2) we will have $a_2 = -a_3$.

In the previous equations, the price of imports was expressed in domestic currency. As it is a common belief that the response to exchange rate changes is very similar to the response to price changes measured in local currency, the coefficient a_3 thus also reflects the exchange rate effects. The empirical evidence on the above supposition appears inconclusive. Several studies show the possibility of trade flows responding differently to exchange rate changes than to changes in foreign prices. (Junuz & Rhomberg 1973; Goldstein & Khan 1974; Wilson & Takacs 1979).

What could be the rationale for expecting such a different response? Werner & Kreinin (1983) gave a few possible reasons. One is the visibility of exchange rate movements: market participants may be more aware of them than they are of any other price changes. Secondly, there are few errors in the measurement of exchange rate changes than of other price changes. And finally, traders may perceive one type of change as more transitory and/or reversible than another, thus inducing a different kind of response.

Therefore, an attempt is made to estimate separately the effect of exchange rate changes on the volume of imports. For this purpose, equation (2) is modified expressing the import price in terms of foreign currency and then adding an exchange rate variable separately.

$$\ln QM = a_0 + a_1 \ln Y + a_2 \ln PD + a_3 \ln PM^{fc} + a_4 \ln ER \quad (3)$$

where •

PM^{fc} = Import-weighted Foreign Currency Price of Imports

ER = Nominal Effective Exchange Rate.

Such a specification splits the effect of changes in the real exchange rate on trade flows into nominal exchange rate and price components. We expect a negative sign for both the coefficients a_3 and a_4 . Thus, according to equation (3), demand for imports is assumed to depend upon income in the importing country (Y), price of import substitutes (PD), foreign currency price of imported good (PM^{fc}), and the exchange rate (ER).

The model presented involves one basic assumption, i.e. importers are always on their demand curve so that demand always equals the actual level of imports. In a typical developing country there exist foreign exchange controls so that this assumption does not hold. Therefore estimating import functions according to previous equations could be of suspect. Learner & Stern (1970) have suggested to include a country's international reserves (IR) in the import function specification as an indication of the strictness of import controls. Following their suggestion, the equation to be estimated is written as follows. The expected sign of the parameter a_5 is positive.

$$\ln QM = a_0 + a_1 \ln Y + a_2 \ln PD + a_3 \ln PM^{fc} + a_4 \ln ER + a_5 \ln IR \quad (4)$$

For many developing countries the receipt of foreign aid is a major determinant of their imports. A big portion of the amount of aid received by a developing country is spent for imports from donor countries. Therefore it can be hypothesized that the volume of imports of such a country like Bangladesh is largely dependent upon the availability of foreign aid. Thus, our import-demand model can be formulated as:

$$\ln QM = a_0 + a_1 \ln Y + a_2 \ln PD + a_3 \ln PM^{fc} + a_4 \ln ER + a_5 \ln IR + a_6 \ln AID \quad (5)$$

where

AID = Disbursed Foreign Aid.

The sign of the parameter a_1 is expected to be positive.

Each of the previous equations was static in the sense that adjustments were assumed to be completed within one time period. In practice, we can find some delay in traders' response which is rather spread over more than one time period. Imports will not adjust instantaneously to their long-run equilibrium level following a change in any of the determinants. Rather we find that imports adjust slowly. Therefore the equation is re-estimated assuming a Koyck-type lag structure:

$$\ln QM = a_0 + a_1 \ln Y_t + a_2 \ln OM_{t-1} \quad (6)$$

It is to be mentioned that there exist few statistical problems with such estimation. There are problems of serial correlation, of the invalidity of the Durbin-Watson test, and of biased estimates. It can also assume an infinite geometrically declining lag structure, or adaptive expectation mechanism. Moreover, such specification will also give a falsely-good regression fit to the data, because in economics a lagged value of the dependent variable is usually a very good "explanation" of the current value of that variable.

III. SPECIFICATION OF EXPORT-DEMAND MODEL

Exports are treated analogously since the models are symmetric with respect to imports and exports. The demand for an individual country's exports depends on economic activity abroad and the relative price of exports. In log-linear terms the estimating equation has the following form:

$$\ln QX = b_0 + b_1 \ln YW + b_2 \ln P' \quad (7)$$

where

QX = Quantity of Exports Demanded

YW = Weighted Average of the Real Incomes of the Country's Trading Partners

P' = Relative Price index, i.e. price of exports of the country (PX) divided by the price of similar products produced by the trading partners (PXW).

Since the equation is specified in logarithms, b_1 and b_2 are the real income and the relative price elasticities of export-demand, respectively. The coefficient of b_1 is expected to have a positive sign, while that of b_2 is expected to be negative. One basic assumption is made when the above equation is estimated: the supply price elasticities of exports are infinite. Making this assumption is rather the usual practice to handle supply relationships. Our assumption implies existence of idle capacity or unsatisfied inventories so that an increase in the world demand for a country's exports can be satisfied without any increase in the price of its exports.

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Specifying the relative price variable separately, as we did in the import-demand model, the function for export-demand has the following form:

$$\ln QX = D_0 - b_1 \ln YW - b_2 \ln FXW + b_3 \ln FX. \quad (8)$$

It is expected that b_2 will be positive and b_3 negative. If the relative price specification is correct, then we will have $b_2 = -b_3$.

Exchange rate changes have so far been introduced by expressing the export price of the country in foreign currency. Thus, the coefficient b_3 shows the response pattern of the volume of exports to changes in the exchange rate too. Now we make an attempt to estimate separately the effect of exchange rate variations. The procedure we follow is the same as in the import-demand model. We keep the export price of the country in terms of local currency, and then add an exchange rate variable. So the specification becomes:

$$\ln OX = b_0 + b_1 \ln YW + b_2 \ln PXW + b_3 \ln PX^{lc} + b_4 \ln ER \quad (9)$$

where

PX^{lc} — Export-Weighted Local Currency Price of Exports

ER = Nominal Effective Exchange Rate.

In each of the previous equations it was assumed that trade adjustments are completed within one time period. In practice, we can expect some delay in these adjustments. Therefore, experiments are also made assuming dynamic adjustment mechanism by estimating equation similar to the import-demand one.

$$\ln QX_t = b_0 + b_1 \ln YW_t + b_2 \ln FXW_t + b_3 \ln FX_t + b_4 \ln ER_t + b_5 \ln QX_{t-1} \quad (10)$$

IV. METHODOLOGY AND DATA

The equations outlined earlier were estimated using quarterly aggregate merchandise imports and exports data for Bangladesh. In the analysis it has been assumed that current dependent variable is influenced more by the explanatory variables of the preceding quarter than by those of the current quarter. (Learner & Stern, 1970). This is because of such factors as the lag between orders and shipments, and the speed with which international trade behaviours are adjusted to different changes.

The estimation method used is Ordinary Least Squares (OLS) method. When there was indication of the presence of first-order autocorrelation, then the particular equation was re-estimated by using the Cochrane-Orcutt (CORC) technique. The results are presented in the following tables. In each of the tables are shown the values of the estimated coefficients, and in parentheses beneath each coefficient, the t-values are written. The statistics like the Coefficient of Determination adjusted for degrees of freedom (R^2), the Standard Error of Regression (SER), the Durbin-Watson statistic (D.W.), the F-statistic and the Coefficient of Autocorrelation (RHO) are also reported for each equation. All the equations were estimated for the 1973-83 period. The data were taken from the International Financial Statistics

and the Directory of International Trade Statistics of the IMF, the Statistical Yearbook of the UN, Economic Trends of the Bangladesh Bank, and Bangladesh Economic Survey of the Government of Bangladesh.

The variable Effective Exchange Rate (ER) was calculated as follows:

$$ER = \sum_{j=1}^n w_j \cdot NER$$

where

NER = Nominal Exchange Rate vis-a-vis Trading Country

w_j = Relevant Weight.

There are no clear-cut criteria for the choice of weights to assign to currencies. Out of the different alternative weighting schemes (import, export, trade, and vehicle currency-weights), no particular methodology is inherently superior to all others, and the proper choice of weights must necessarily be judged in relation to the specific purpose. (Rhombert 1976; Lipschitz 1979). In this paper, the results based on currency composition of trade weights are mentioned. As it is simpler and not too unreasonable to use only a few currencies, the four most important currencies for Bangladesh (US Dollar, UK Pound Sterling, German Mark and Japanese Yen) are considered for calculation of the weights.

There are few series for which only annual data were available. These were income of Bangladesh, income of the world and disbursed amount of foreign aid. Construction of quarterly data for these series was made by interpolation. (Barten 1981). Quarterly series were also not available for import and export price indices of Bangladesh. In the former case, the import price index of non-oil Asian developing countries was used as a proxy. And in the latter case, the jute price index was used. The price index of domestically produced import substitutes was proxied by the consumer price index, while the weighted average of the export prices of the country's trading partners was proxied by world export price index. Use of these proxies is not uncommon in empirical studies. The variable world income could not be calculated as weighted income of all trading partner countries. Instead it has been proxied by the: **trade-weighted average GDP of industrial & developing countries.**

V. EMPIRICAL RESULTS

In order to see whether the volumes of imports and exports display any definite seasonal behaviour, a set of seasonal dummy variables is introduced in the estimating equations. The inspection of the dummy coefficients revealed no strong seasonal pattern. So estimates are made afterwards without using any seasonal dummy in the equations.

Import Model

The estimated income elasticity of import-demand for Bangladesh has the expected positive sign. Its numerical magnitude leads us to conclude safely that income elasticity is greater than unity. The finding is contrary to the belief that developing

economies have low income elasticities. Khan & Ross (1975) commented on the form of the estimated equation for not making a distinction between the effects of cyclical factors and those factors that are secular in nature on the level of imports. Since the effects of cyclical factors may well be substantially different from the effects of the secular factors, using current real income as an explanatory variable would perhaps at best only capture the cyclical influences on imports.

TABLE I
IMPORT-DEMAND MODELS

C	+ Y	- P	+ PD	- PM	- PM ^{fc}	- ER	+ IR	+ AID	R ²	DW	SER	RHO	F	Eqn.
-3.21 (3.37)	1.71 (3.64)	-0.39 (1.72)							0.31	1.91	0.17	0.20 (1.40)	9.82	1
-4.32 (1.50)	1.38 (1.17)		0.45 (1.37)	-0.34 (1.52)					0.29	1.94	0.17	0.22 (1.46)	6.13	2
-3.88 (1.66)	1.23 (1.02)		0.11 (0.30)		0.24 (0.66)	-0.43 (1.44)			0.30	1.98	0.17	0.24 (1.62)	5.22	3
-4.10 (2.01)	1.06 (0.99)		0.40 (1.14)		0.07 (0.20)	-0.60 (2.25)	0.13 (1.81)		0.39	1.91	0.17	0.13 (0.82)	6.12	4
-4.44 (2.15)	1.47 (1.39)		-0.39 (0.90)		0.17 (0.52)	-0.36 (1.29)		0.41 (1.92)	0.39	1.92	0.16	0.15 (0.97)	6.06	-
-4.47 (2.36)	1.25 (1.25)		-0.08 (0.18)		0.05 (0.17)	-0.49 (1.86)	0.12 (1.56)	0.35 (1.73)	0.45	1.87	0.16	0.08 (0.49)	5.66	5

Note: 1- All explanatory variables are lagged one quarter.
2. With 40 degrees of freedom, critical values of t-statistic are: 2.02 (95%) and 1.68 (90%).
3. Critical values of F-statistic at 5% level of significance are: F(2,30) = 3.32, F(3,30) = 2.92, F(4,30) = 2.69, F(5,30) = 2.53.

The estimated relative price elasticity has the expected negative sign. Its value is quite less than unity thus implying a small response of imports to change in relative prices. The result is not surprising, rather a priori could be expected, since most of Bangladesh's import items consists of what she needs as a matter of necessity. The price inelastic import demand in Bangladesh has also been found by Nguyen & Bhuyan (1977).

Now, we shall test the appropriateness of using the relative price variable as against specifying the two components separately. The test is based on t-statistic (Johnston 1972, p. 155). For our hypothesis that $a_2 = -a_3$ or, $a_2 + a_3 = 0$ (4 specified in eqn.2), the calculated t-value of 0.31 does not lead to its rejection. Yet we have to keep in mind that normal statistical methodology does not permit the choice of specification to be based on sample information. So our analysis continues with the unconstrained specification.

While comparing the specification with the constrained relative price variable, we can notice that in the unconstrained case the value of the income elasticity has decreased, and it turned out to be insignificant. The domestic price and import price elasticities have the expected positive and negative sign respectively, and are not significant. Goldstein *et al.* (1980) pointed to the usefulness of disaggregating the domestic price index into tradable and nontradable goods components. They indicated that using only the price of tradable goods as the domestic price variable generally yielded estimates that were larger and more significant.

So far in our analysis, exchange rate changes were introduced indirectly by expressing the import price in domestic currency units. As mentioned earlier, in this paper we try to estimate separately the effect of exchange rate variations. The idea is based on the assumption that the long run import response to changes in price of imports and exchange rate is about the same, but the short run effects may differ. The empirical result, as provided in eqn. 3, table 1, suggests that the exchange rate is exercising an independent influence. The variable has the expected negative sign. The foreign price coefficient carries positive sign (contrary to the theoretical suggestion), and has a lower elasticity.

The import-demand equations with income and price variables only do not perform well as far as the fit is concerned. R^2 is in the region of 30% only. This low value of R^2 should not be too surprising as it varies from research to research. One can identify a number of shortcomings in empirical estimation of these equations. These include lack of specific quarterly data as well as missing variables, improper choice of price variables, absence of accurate dynamic adjustment process, and possible inaccuracies of the used data.

Besides the variables traditionally associated with import demand, there exist at least two other factors which can also explain Bangladesh's import demand. These are import controls and available amount of foreign aid. So we have added two more variables to our basic model in order to test the hypotheses.

We have taken foreign currency reserves as an explanatory variable indicating strictness of import control. The introduction of this variable in the specification has increased the fit. The variable has the expected positive sign and is significant. When the foreign aid variable is introduced in the model, the goodness-of-fit increases too. The variable too has the expected sign and is significant. When the model is specified in full, it appears that the exchange rate and the foreign aid variables are the two most significant variables. The influence of income and international reserves is also considerable, whereas the influence of price is negligible.

Till now we made the simplifying assumption that all adjustments take place within one quarter. We now try to estimate the long run impact with the Koyck type lag specification (eqn. 6). It has been mentioned earlier that OLS method is inappropriate in estimating equation when lagged dependent variable is combined with serially correlated disturbances. The Full-Information Maximum-Likelihood method is a better technique. However, considering the small sample size in this study we have retained OLS estimation. Since the usual Durbin-Watson statistic becomes invalid in such estimation, H-value is computed following Johnston (1972, p. 313). From the estimated equation we find that the coefficient of lagged imports

is significantly different from zero, which implies a certain degree of dynamic adjustment. Our estimate of the adjustment coefficient is $(1-0.58) = 0.42$. So less than half the move towards

$$\begin{aligned} \ln QM_t = & -2.18 + 0.51 \ln Y_t + 0.51 \ln PD_t - 0.11 \ln PM_t^c - 0.48 \ln ER_t \\ & (1.46) \quad (0.68) \quad (1.43) \quad (0.52) \quad (2.55) \\ & + 0.13 \ln IR_t - 0.09 \ln AID_t + 0.58 \ln QM_{t-1} \quad (\text{eqn. 6}) \\ & (2.54) \quad (0.45) \quad (4.09) \end{aligned}$$

$R^2 = 0.69$, $SER = 0.16$, $RHO = -0.36$ $F = 11.75$, $H\text{-value} = -5.82$

the desired level is completed in one period. The long run effect of an exchange rate change on volume of imports is $(0.48/0.42) = 1.14$. It suggests that the long run impact is only marginally greater than unity.

Separate analysis with annual data is also made to get the differences in quarterly analysis. The fit, as measured by R^2 , is much better (around 85%). Income elasticity is significantly greater than unity. In fact, the income elasticity of the import-demand seems to be much higher than what one might expect. Import demand is found to be price inelastic thus indicating that prices play no important role on imports. Both foreign price and exchange rate have insignificant inelastic estimates, while the variables international reserves and foreign aid are found to be significant.

Export Model

The results of the export demand models are presented in Table II. Most of the estimates of income elasticity of export-demand are significant, have the expected positive sign, and are less than unity. The finding supports the commonly held belief that developing countries face income inelastic demand for their exports.

TABLE II
EXPORT-DEMAND MODELS

	+	+	+									
C	YW	P	PXW	PX	PX ^C	ER	QX _{t-1}	ft ²	DW	SER	F	RHO EQN.
1.94	0.57	-1.20						0.78	1.98	0.15	72.27	0.26 7
(1.30)	(1.07)	(0.85)										(1.71)
-7.10	0.51		1.42	-0.59				0.72	2.16	0.14	34.95	0.43 8
(3.05)	(1.70)		(9.18)	(2.89)								(3.09)
-8.56	0.36		1.29		-0.27	0.52		0.60	2.08	0.14	15.69	0.55 9
(2.95)	(1.00)		(4.45)		(1.13)	(1.39)						(4.22)
-4.48	0.37		0.34		-0.26	0.61	0.60	0.93	* 0.13		102.12	-0.20 10
(3.60)	(2.39)		(2.17)		(1.85)	(2.68)	(5.93)					(1.35)

Notes : See Table I.

*H-value = -1.73

The estimated relative price elasticity bears the expected negative sign and it is significantly greater than unity. This implies a fair response of exports to changes to relative prices. Separating the relative price variable into its two components yields more information. World export price elasticity has the correct positive sign and it is significantly greater than unity. On the other hand, export price elasticity of Bangladesh bears the correct negative sign, but it is significantly less than unity. This means, variations in world price would affect the quantity of exports demanded from Bangladesh, whereas variations in Bangladesh's own export price would not have any major impact.

Following the methodology explained in the previous section we tried to see the appropriateness of using the relative price variable in the **export-demand** equation. The calculated t-value of 3.39 is found to be significant. Thus the null hypothesis that the two coefficients of price variables are equal is rejected. The separate specification here seems to be statistically justified.

When the export price variable was separated into two of its components, it was found that both export price expressed in local currency and the exchange rate carry the expected negative and positive sign respectively. These two variables have elasticity less than unity, though the influence of exchange rate appears to be greater. This implies slightly larger response of exports to changes in the exchange rate.

The presence of some degree of dynamic adjustment can be seen from the significantly positive coefficient of lagged exports. All other coefficients in eqn. 10 are also significant with correct **signs**. The **long** run effect of an **exchange** rate change on volume of exports is $(0.61/0.40) = 1.52$. Therefore, in the long run, the exchange rate elasticity appears to be greater than unity.

Performing analysis with annual observations, it is found that in some cases the estimate of income elasticity is significantly greater than unity. The world export price is estimated to be elastic while Bangladesh's export price inelastic. The separate specification of the exchange rate reveals significantly elastic influence of exchange rate on export volume.

VI. COMPARISON

Comparing income elasticities for imports and exports, we can find a difference: the import elasticity was much higher than the export elasticity. Such a phenomenon led Houthakker & Magee (1969) to comment that at constant relative prices the country is required to grow at a rate considerably lower than the rest of the world if it wants to maintain its exchange rate. If Bangladesh grew even at the same rate as of the rest of the world, its trade balance would be subject to deterioration as the demand for imports would increase comparatively more than that of the exports.

Import-demand in Bangladesh has been found to be, as expected, price inelastic. The evidence on price inelastic foreign demand for Bangladesh's exports was less clear. World export price has been found elastic while Bangladesh's export price inelastic. In both import— and export-demand models, the **exchange** rate appeared to have played a separate role. The coefficient of exchange rate variable always carried the expected sign, and was mostly significant. Exchange rate elasticities

were relatively similar both for the volume of imports and the volume of exports, at least in the short run. Whereas, in the long run, the impact of exchange rate changes on exports was definitely larger.

VII. POLICY IMPLICATIONS

The findings of the paper lead us to think about the efficacy of exchange rate changes as far as current account imbalances are concerned. The research shows that the levels of demand for Bangladesh's imports and exports are exchange rate inelastic. The conclusion is more corroborated once we look at the relative prices of imports and exports. Let us look at the import side first. One might expect that through an increase in the exchange rate, the domestic currency prices of imports will be increased so that there will be decrease in the level of imports. But this does not happen in Bangladesh. Imports of Bangladesh are price inelastic. Price is not an important factor that can be manipulated to determine the import level. So exchange rate changes in this regard are of no importance.

Now, looking at the export side, one might expect that by increasing the exchange rate, the foreign currency price of exports decrease, so that there will be an increase in the demand for Bangladesh's exports. But this does not seem to happen either in case of Bangladesh. The level of Bangladesh's exports depends more on the price level of its trading partners than its own export price. Variations in Bangladesh's export price through exchange rate changes do not seem to have any effect on its level of exports. This one might expect from the fact that Bangladesh is a price-taker in the world market.

The evidence presented, therefore, suggest that variations in the exchange rate alone may not solve the current account imbalance facing Bangladesh. This would demand rethinking of adjustment programme through exchange rate changes. Such a method involves obviously an easy and quick action. But the intended effects remain largely unaccomplished. More attention, perhaps, be given to other macroeconomic policies like the monetary and the fiscal policies, as these are responsible for real effects in the economy, and thus have a bearing on the exchange rate too. The simple view that exchange rate changes have direct effects on the current account balance of Bangladesh has insufficient empirical support.

VIII. CONCLUDING REMARKS

In order to estimate the effect of exchange rate changes on the demand for imports and exports of Bangladesh, the emphasis in this study was placed on constructing import-demand and export-demand models, and then estimating the relevant elasticities. The demand functions were specified in the traditional multiplicative way, and estimated in a transformed log-linear form. Usually, exchange rate changes are introduced indirectly by expressing the prices in common currency units. In this paper, instead the direct specification of the exchange rate variable was made. This seemed to provide more information on the influence of exchange rate changes. Also the usually put constraint on relative price variable was removed from the specifications.

The results of this study need to be treated with a little bit of caution due to the following. First, the whole research has been limited to aggregate imports and exports. Had we been able to perform a disaggregated analysis based on commodity groups, at least, the significance of the study would have greatly enhanced. Secondly, there were absence of a few exact quarterly series for which proxies were used. Thirdly, the parameter estimates of this study are based on a limited number of observations, and so, few degrees of freedom. Fourthly, non-price factors, which may affect trade performances, have not been incorporated into the model. Thus, we see, much experimentation, both with disaggregation and specification, remains to be done before a strong conclusion could be made.

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